# Design Information - General

**22 August 2025**

CONTENTS

# 1 INTRODUCTION

The Design Information details the Ausgrid specifications for a contestable connection or alteration to the Ausgrid Network.

## 1.1 *Design information - General*

This document details the general requirements that relate to all contestable projects.

In certain circumstances, as advised by Ausgrid an ASP/3 designer will only require the Design Information – General document to undertake a design (refer Section 5 Appendix A). In all other cases a Design Information – Site Specific document will be issued to supplement the Design Information – General.

Whilst the Design Information – General document is readily available from the Ausgrid web site, its validity period for use on a contestable project commences on the date that Ausgrid provides the connection applicant with a design offer. The ASP/3 is to ensure that the latest version is obtained prior to undertaking a design.

## 1.2 *Design information – Site Specific*

The Design Information – Site Specific document details the additional requirements related to a development's specific site and the associated connection application. If issued, this document must be read in conjunction with the Design Information – General document. This document is only issued by Ausgrid when deemed necessary by Ausgrid (refer Section 5 Appendix A).

### 1.2.1 Design Information located on the Ausgrid Website

The following documentation is readily available and can be found on our website: Network design

- ASP/3s – How to use Ausgrid's Connection Portal.
- WEBGIS Update: May 2024 - Substation ratings and maximum demand.
- Design Certification Check Sheet.
- Asset Number Request.
- Asset Valuation Spreadsheet (AVS) External.
- Contestable Connections Process Flowcharts post and prior to 13 September 2024.
- Contracts and Deeds - includes Contract for Design Related Services (CDRS) and Easements and Leases forms.
- Customer Details Form.
- Design Information – General.
- Environmental Planning.
- Network Earthing Information Sheet.
- PDV Request Form.
- Procedures and Information regarding upgrading and augmenting existing Schneider Kiosk substations.
- Proposed Design Scope.
- Rating Assessment Submission Template (NS272)
- Street Lighting Acceptance Form.
- Suggested ISMP Format and Guide for Inspection of High Voltage Customer Installations.

The authorised ASP/3 must obtain the following from the WebGIS:

- A translated extract of the proposed work area in .DWG NET CAD External Design Template format.
- Relevant system diagram(s) and schematics.
- Environmental Report from the Environment Layers.

### 1.2.2 OBJECTIVES

The objectives of the Design Information are:

- To provide authorised ASP/3 designers with information to prepare a design that meets Ausgrid's requirements.
- To ensure all information is presented in a standard, consistent and easily interpreted format which will lead to a clear understanding of the scope of works being undertaken.

**Note:** the intended audience for the design information documents is the authorised ASP/3 designer for the project.

# 2 DEFINITIONS

The following terms used in the design information documents have the meanings indicated, unless specified otherwise:

- **Accredited Service Provider (ASP/1)** - as defined in Ausgrid's Standard Connection Services for Contestable ASP/1 Premises Connections no greater than 11kV Offer.
- **Accredited Service Provider (ASP/3)** - as defined in Ausgrid's *Contract for Design Related Services*.
- **Authorised ASP/3** - as defined in Ausgrid's ES4 *Accredited Service Provider Authorisation.*
- **Connection Point** - as defined in the Service and Installation Rules of New South Wales.
- **Connection Works** - as defined in Ausgrid's *Connection Policy*.
- **Design Information** - as defined in Ausgrid's *Contract for Design Related Services*
- **Design Plan** - as defined in Ausgrid's NS104 Specification For Electrical Network Project Design Plans.
- **Designer** - as defined in Ausgrid's NS104 Specification For Electrical Network Project Design Plans.
- **Extension** - as defined in Ausgrid's *Connection Policy*.
- **Network Standards** - technical documents prepared by Ausgrid that detail design and construction requirements.
- **N-1** - refers to a principle of redundancy and reliability where the system is designed to operate even if one component fails.
- **Point of Attachment (POA)** - as defined in the Service and Installation Rules of New South Wales.
- **Point of Common Coupling (PCC)** - as defined in the Service and Installation Rules of New South Wales.
- **Ready for Tender (RFT)** - the design is certified as RFT to allow the Customer to start the tender process for ASP1 engagement.
- **Ready for Construction (RFC)** - when a design is certified as RFC a construction offer is issued.
- **Relocation Works** - as defined in Ausgrid's *Policy - Asset Relocations*.
- **WebGIS** - application that provides information from Ausgrid's Geographic Information System.

# 3 GENERAL REQUIREMENTS

## 3.1 *Disclaimer*

Ausgrid prepares Design Information based on data from Ausgrid's Geographic System (GIS), Network Standards, and other available resources. Certain projects or locations may necessitate unique specifications beyond those outlined. Any proposed modifications must be authorised by Ausgrid before implementation.

Customers and Accredited Service Providers should only use quotations after RFT certification by Ausgrid. Ausgrid is not responsible for work done using outdated Design Information and may reject designs that don't meet current standards.

## 3.2 *Interpretation*

Users who find any provisions in Ausgrid's Network Standards or Design Information ambiguous or in need of interpretation must request clarification from Ausgrid. Once provided, Ausgrid's interpretation will be considered final and binding. No correspondence will be entered into regarding disputes over the meaning or accuracy of these provisions.

## 3.3 *Validity Period*

Design Information is valid for 12 months and may change at any time. Users must ensure they are using the most current version, including any updates issued since the original date of issue.

## 3.4 *Details of Ausgrid Network in Vicinity of the Development*

Recorded details of Ausgrid's network, including cable and soil codes, are accessible via Ausgrid's external WebGIS. ASP/3 designers must log in to obtain relevant data and contact Ausgrid for clarification or missing information. Note: not all WebGIS data has not been verified against actual site assets. Designers are responsible for accuracy and strongly advised to verify asset details on-site before proceeding.

## 3.5 *Details of Other Proposed Projects in the Vicinity of the Development*

The external WebGIS typically displays known projects with completed designs near the proposed development, using proposals or polygons. However, the data is not exhaustive and works shown may or may not be under construction. If other projects are set for completion before the proposed development, the submitted design must reflect these as completed works on the design.

How to obtain information about other projects:

- **Other Contestable Works:** The ASP/3 designer is responsible for acquiring information directly from the Customer or Applicant associated with the other project, as Ausgrid does not disclose contact details. Ausgrid will, however, confirm whether the project is currently in construction.
- **Ausgrid Capital Works:** Ausgrid will provide the ASP/3 designer with a PDF copy of the Ausgrid design and inform them of the expected construction timeframe for the works.

## 3.6 *General Design Criteria*

Design and construction must comply with all relevant Ausgrid Network Standards and Policies. Associated standards and drawings can be found on the Ausgrid website: www.ausgrid.com.au. The following subsections apply only if a construction component or method is proposed or detailed in the contestable design.

### 3.6.1 Connection Point

The connection point is typically the nearest location on Ausgrid's existing network that meets the required operating voltage for the extension. While the Connection Applicant selects the initial connection point, Ausgrid retains the right to determine the final location.

### 3.6.2 N Rated Connections

This connection is established in agreement with the connecting customer. In the event of network contingencies, the proposed supply may be subject to load shedding without notice if capacity is insufficient to maintain or restore supply to customers on an 'N-1' connection.
Ausgrid may require a supply interruption for planned network works, subject to the notice provisions of the National Energy Customer Framework (NECF).

### 3.6.3 Route Information

The ASP/3 designer is responsible for selecting a suitable route. Ausgrid makes no warranty, express or implied, regarding the suitability of any proposed route depicted in the design information. However, Ausgrid reserves the right to require modifications to any route.

### 3.6.4 Ausgrid Fibre Optic Network

The ASP/3 designer must contact Ausgrid early in the design phase if the proposed works involve altering or extending Ausgrid's or a third-party fibre optic network. Ausgrid will outline the scope of fibre optic works, distinguishing between non-contestable tasks performed by Ausgrid and contestable work handled by the ASP/1. Fibre optic network design reviews are conducted on a case-by-case basis, with Ausgrid typically managing final terminations and commissioning.

### 3.6.5 Overhead Mains Construction

Heavy vehicle access is required at all pole positions. If unavailable, an all-weather access track must be constructed.

The ASP/3 designer is responsible for verifying the suitability of existing poles for new assets.

Where HV overhead conductors are removed but LV overhead conductors remain, the design must include lopping and capping to adjust the HV pole height to the appropriate LV pole height.

### 3.6.6 Underground Mains Construction

#### 3.6.6.1 Low Voltage Schematic Representation

The low-voltage network schematic must use LV geo-schematic formatting, based on the LV_SCHEM layers and symbols provided by Ausgrid's WebGIS AutoCAD extraction.

#### 3.6.6.2 Low Voltage Pillar Types

Low voltage pillars (new or altered) within Commercial areas must comply with NS224. All other underground areas must comply with NS110.

#### 3.6.6.3 Footpath Allocations

Must comply with NS130.

#### 3.6.6.4 Conduits

New conduits must be installed in compliance with Ausgrid Standards.

Prior approval from Ausgrid is required to use any existing spare conduit.

Where permission is granted, the conduit's depth of cover must conform to current Ausgrid Network Standards across its full length.

Spare conduits are identified based on plans and may not be available or fit for purpose due to prior usage, damage, or insufficient cover. Ausgrid accepts no responsibility for delays, extra costs, or penalties arising from conduit-related issues.

#### 3.6.6.5 Conduit Requirements

| | |
|---|---|
| Conduits to be laid as part of this project | If fibre optic cable installation is required in an Ausgrid strategic area, one spare 63mm conduit must be added to all 11kV cable trenches. Ausgrid will specify conduit requirements in the site-specific design details.<br><br>One (1) spare HV conduit to be installed for each 11kV underground cable. Additional spare conduits may be specifed in the High Voltage Connection requirements.<br><br>**URD:** One (1) spare LV conduit is to be installed with any LV underground route.<br><br>**Commercial Subdivision:** Two (2) spare LV conduits on each side of the roadway and a minimum of four (4) conduits at a road crossing.<br><br>**Other:** e.g. future URD extension/interconnection: Two (2) spare LV conduits to be installed along a future LV underground cable route.<br><br>**Chamber substation:** – Refer to conduit table in NS113.<br><br>**Kiosk substations located within the development property remote from the property frontage:** The cable route on private property requires the following:<br>• HV Conduits: minimum four (4) conduits - 2 cable + 2 spare.<br>• LV Conduits:<br>~ Low voltage distributors to be installed in conduit, plus<br>~ One (1) spare conduit for each potential low voltage distributor based on the substation low voltage panel configuration, plus<br>~ One(1) spare conduit in addition to the above total.<br>• Fibre Optic Cable Conduits: if applicable one (1) conduit.<br><br>**Note 1:** Minimum size HV conduit is 150mm.<br><br>**Note 2:** Minimum size LV conduit is 125mm.<br><br>**Note 3:** Ausgrid reserves the right to vary conduit requirements at any time. |

### 3.6.7 Minimum Cable/Conductor Type

The minimum cable size for any new Ausgrid network extension or relocation must align with the specifications provided in the following table unless stated otherwise by Ausgrid.

Note: Where existing cables are larger than the specified minimum, an equivalent size to the existing cable must be used.

| Underground Cables | |
|---|---|
| 11kV | Minimum:<br>11kV 400 AL3 polymeric cable - refer to NS177 for details on cable termination requirements (ie the cable size for the transistion to single core cables).<br>For NSA1420 approved locations: 11KV 300CU1 triplex cable |
| Low Voltage | Refer to NS110 and NS112 |
| Street Lighting | Refer to NS110, NS112 and NS119 |
| SCADA / Telecontrol | UGFO - 60 Fibre Nylon Jacketed Dry Core Cable |
| Auxiliary Earth | Black PVC insulated 70mm$^2$ copper cable |
| **Overhead Cables** | |
| 11kV – Urban Areas | Mercury 7/4.50 AAC |
| 11kV - Rural Areas | Apple 6/1/3.00 ACSR |
| 11kV – Network Reliability due to vegetation and wildlife | CCSX62 62mm2 ACSR: normal feeder segments<br>CCSX 159 AAAC 22kV W: main feeder 'trunk' from a substation, or to supply large loads (up to 380A) |
| Low Voltage | LV ABC 95AL |
| Street Lighting | LV 25sqmm twisted aluminium aerial service cable |
| SCADA / Telecontrol | 60 Optical Fibre ADSS PE cable - (selection of cable type bases on longest span length between splices 100m, 150m, 250m, 400m, 600m).<br>OPGW - (railway crossings and bushfire areas) |

### 3.6.8 Low Voltage Links

#### 3.6.8.1 Overhead to Underground Transition Points

Any LV underground to overhead transition point that connects directly to a kiosk or chamber substation (i.e. the first LV network connection on the LV distributor cable) requires the installation of pole mounted LV links.

#### 3.6.8.2 Overhead Reticulation - Link Usage and Asset Numbering

All pole mounted LV links are allocated individual asset numbers that must be shown on the design and be numbered in the field.

#### 3.6.8.3 Underground Reticulation - Link Usage and Asset Numbering

| Area | Link numbers required on Design | Link numbers required in Field |
|---|---|---|
| Hunter Area | Single link switch pillars (except first pillars on LV feeders from kiosks or chamber substations), double switch link pillars, and NS224 pillars require an asset number for each link/distributor. | YES |
| Central Coast | NO | Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s). |
| Sydney - North | Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s). | Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s). |
| Sydney - South | NO | Only normally open LV links within single and double link switch pillars are allocated an additional asset number for the link(s). |

### 3.6.9 Street Lighting

The ASP/3 designer needs to liaise with the public lighting customer (i.e. Local Council) to:

- Establish the required lighting level and, if possible, obtain the lighting design layout from the customer's lighting consultant.
- Identify the appropriate Ausgrid-approved street lighting equipment, including lamp types, sizes, luminaire models, and relevant standards.
- Determine whether the street lighting electrical reticulation should be overhead or underground.
- Submit a completed street lighting acceptance form (AUSPL CON F01A) to Ausgrid for any public lighting modifications. A residual value payment may apply for removed or altered street light components.

If proposed electrical works affect existing street lighting, the current lighting levels must be preserved unless the public lighting customer grants approval for adjustments.

Street lighting must be designed per the NSW Public Lighting Code, Ausgrid Network Standards, and AS/NZS 1158 series if required by the customer.

The ASP/3 designer must provide a structural report detailing any variations to the foundation of a steel street lighting column, including a reference to the structural engineer and relevant documentation.

### 3.6.10 Substations

Developers and property owners are responsible for providing substation sites that are clear, level, and free from obstructions. These sites must comply with Ausgrid Network Standards and all relevant Environmental Planning, Electricity Supply, and Work Health and Safety legislation.

#### 3.6.10.1 Substation Equipment

Ausgrid Network Standards provide sufficient information for the ASP/3 designer to select the appropriate equipment for a proposed substation.

#### 3.6.10.2 Labelling of Distribution Centres

To facilitate safe and efficient network management, distribution centres must follow Ausgrid's Network Standard NS158 and Electrical Safety Rules regarding labelling.

- High-voltage feeders must be labelled sequentially from left to right with suffixes (/A, /B, /C, etc.), appended to the distribution centre number.
- Low-voltage distributors must be labelled numerically (1, 2, 3, etc.) from left to right.
- The ASP/3 designer must consult Ausgrid before implementing any changes to the labelling sequence, such as introducing an additional LV distributor.
- All schematic diagrams and physical/electrical layouts within the design plan must align with equipment labelling requirements.

#### 3.6.10.3 Pole Mounted Substation

The ASP/3 designer must select the relevant NS122 master list option(s) during the design process and document the selection in the design.

#### 3.6.10.4 Kiosk Substation

If vehicle protection or retaining walls are required for a kiosk substation site, the easement area dimensions must be appropriately increased to accommodate them. These structures must be positioned outside the standard kiosk substation area (typically 3.3m x 5.3m) as specified in Ausgrid Network Standards.

#### 3.6.10.5 Chamber Substation

The Customer is required to secure Ausgrid-approved architectural drawings for substation civil works before construction starts. To finalise these architectural drawings, Ausgrid requests that the ASP/3 designer submit the proposed electrical design for approval as soon as possible.

##### 3.6.10.5.1 Standard Single Transformer Surface Chamber Substation

Ausgrid drawings 224407 and 224408 provide detail on the layout of this type of chamber.

##### 3.6.10.5.2 Multi Transformer Chamber Substations

No standard layout or construction drawings exist for these chamber substations. The ASP/3 designer must refer to Ausgrid Network Standards NS113, NS114, and NS153 for design criteria and specifications when preparing a multi-transformer chamber design.

#### 3.6.10.6 High Voltage Customer (HVC) Substation

The customer must provide a HVC as detailed in NS195. HVC options are as follows:

Pole mounted 33KV NOJA Type OSM38 Recloser – Ausgrid drawing: 258087.

Pole mounted 11kV NOJA Type OSM15 Recloser – Ausgrid drawing: 258068.

Schneider R-Type HVC Kiosk – Ausgrid drawing: 258017.

Lucy Sabre RMICB within a Chamber – site specific drawing prepared by ASP/3 designer.

#### 3.6.10.7 Substation Fusing

If substation fusing cannot be determined during the design phase, Ausgrid will determine the required fusing and advise the ASP/1 during the electrification stage of the works.

##### 3.6.10.7.1 Pole Mounted Substations

| Pole Mounted Substations | High Voltage Fuse | Maximum Low Voltage Fuse |
|---|---|---|
| 1ph (11kV/500-250) - 16KVA | 10KA NGK Fuse Link | 100amp GEC / DS-Siem / MEM / Eaton |
| 1ph (11kV/500-250) - 25KVA | 10KA NGK Fuse Link | 200amp GEC / DS-Siem / MEM / Eaton |
| 1ph (11kV/500-250) - 63KVA | 16KA NGK Fuse Link | 300amp DS-Siem or 315amp MEM / Eaton |
| 3ph (11kV/433) - 25KVA | 10KA NGK Fuse Link | 100amp GEC / DS-Siem / MEM / Eaton |
| 3ph (11kV/433) - 63KVA | 10KA NGK Fuse Link | 200amp GEC / DS-Siem / MEM / Eaton |
| 3ph (11kV/433) – 100kVA | 16KA NGK Fuse Link | 200amp GEC / DS-Siem / MEM / Eaton |
| 3ph (11kV/433) – 200kVA | 31.5KA NGK Fuse Link | 400amp GEC / DS-Siem / SIBA / MEM / Eaton |
| 3ph (11kV/433) - 400KVA | 63KA NGK Fuse Link | 600amp GEC / DS-Siem / MEM / Eaton * |
| SWER 12.7kV: 5-10kVA | 3KA S&C SMU Fuse Link | 100amp MEM / Eaton |
| SWER 12.7kV: 15-25kVA | 6KA S&C SMU Fuse Link | 100amp MEM / Eaton |
| The upper case "K" beside the HV fuse rating denotes the speed characteristic and applies to High Voltage dropout fuses only. | | |
| * In accordance with NS109 the maximum rating fuse on an overhead low voltage network or distributor is 400amps. | | |

##### 3.6.10.7.2 Kiosk Substations

| Kiosk Substation - High Voltage Fuse | |
|---|---|
| 400kVA with 400amp LV fuses | 40amp SIBA 30.020.93 |
| 400kVA with 600amp LV fuses | 50amp SIBA 30.020.93 |
| 600kVA | 80amp SIBA 30.020.93.80 |
| 800kVA | 100amp SIBA 30.020.93.100 |
| 1000kVA | 100amp SIBA 30.020.93.100 |
| **Kiosk Substation - Low Voltage Fuse** | |
| Schneider SAIF - LV Fuse Distributor – 400amp | LV fuse elements: 400amp 92mm centres Bell / MEM "J" |
| Schneider SAIF - LV Fuse Distributor – 800amp | LV fuse elements: 400amp 92mm centres Bell / MEM "J"<br>LV fuse elements: 630amp 92mm centres Bell / MEM "J"<br>LV fuse elements: 800amp 92mm centres Bell / MEM "J" |
| Schneider SAIF - LV Fuse Distributor – 2000amp switch with "T" type bolt-in 1000 - 1600amp fuses | LV fuse elements: 1000amp 160mm centres Alstom<br>LV fuse elements: 1200amp 165mm centres Alstom<br>LV fuse elements: 1600amp 160mm centres Alstom |

#### 3.6.10.8 Earthing

If WebGIS does not specify an SME design, a site-specific earthing report (SSER) is required for the equipment listed in NS116. The ASP/3 designer must submit soil resistivity readings and an Earthing Information Sheet for Ausgrid to complete the SSER report.

The SME or SSER earthing requirements including electrode locations and cabling must be detailed in the NETCAD External Design Template.

### 3.6.11 Asset Number Allocation

To obtain Ausgrid asset numbers the ASP/3 designer needs to email a completed Asset Number Request to contestability@ausgrid.com.au

### 3.6.12 Return of Redundant Reusable Equipment

If required, the design must include an inventory of all redundant reusable materials designated for return to Ausgrid, along with the following notations:

- The customer's ASP/1 is responsible for recovering and returning redundant equipment.
- The ASP/1 must contact Ausgrid via ASPreturns@ausgrid.com.au to arrange equipment returns.

### 3.6.13 Ausgrid Property Rights

Ausgrid property rights are required over any part of private property that is affected by proposed, augmented and/or existing Ausgrid assets. It is the developers' or their agents) responsibility to obtain all necessary consents.

Refer to Ausgrid Network Standard NS104 and NS143.

### 3.6.14 Environmental Impact Assessment

The ASP/3 designer is responsible for the preparation and/or submission of a Summary Environmental Report (SER) of the electrical works.

Refer to Ausgrid Network Standard NS104 and NS174.

### 3.6.15 Other Authorities or Parties

The ASP/3 designer must obtain written consents or comments from all impacted parties, including Local Councils, Telecommunication, Water and Gas Companies, and Landowners, as outlined in Ausgrid Network Standards NS104 and NS174.

All consents and proof of arrangements must be submitted with the design for certification. These works are fully funded by the Customer.

The ASP/3 designer must liaise with the Customer and/or ASP/1 to coordinate third-party works before or during the construction of contestable works.

### 3.6.16 Other Conditions

Asbestos or asbestos-containing material may be present in Ausgrid network assets. The Ausgrid Asbestos Register provides details on specific equipment containing asbestos.

Authorised ASP/3 designers can access known hazardous material locations via the WebGIS extraction function or request Asbestos Register information through their Ausgrid point of contact.

PCB-containing material may be present in Ausgrid's oil-filled assets. The ASP/3 designer must include the handling and transportation of oil-filled equipment to the Ausgrid depot in the SER.

CCA poles may exist within Ausgrid's network. The SER must cover identification, handling, and disposal of CCA poles by the ASP/3 designer.

## 3.7 *Valuation of Customer Contributed Assets*

The design submission must include the Asset Valuation Spreadsheet (AVS). This spreadsheet allows the ASP/3 designer to document the type and quantity of customer-contributed assets for the contestable connection project. Only the latest version of the AVS, available from the Ausgrid website, must be used.

## 3.8 *Subsequent Discussions and Consultations*

Ausgrid reserves the right to charge for any additional time involved in attending site visits, consultation, advice or discussion on matters relating to the design in accordance with the Ausgrid Connection Policy and Network Price List documents.

# 4 Network Extension Requirements

The network extension requirements vary depending on the type of development.

Refer to the Ausgrid document *Policy for ASP/1 Premises Connections* for the types of development definitions and examples.

## 4.1 *Subdivision Types*

### 4.1.1 Community Title

- The network extension connection point may be either high voltage or low voltage.
- A single connection point from the Ausgrid network is required unless the electrical load exceeds the capacity of the dedicated customer substation.
- The customer is responsible for owning, operating, and maintaining all LV reticulation (including street lighting), except on dedicated public roadways, per NS110.

### 4.1.2 Strata Title

- The network extension connection point is normally low voltage.

  A single connection point from the Ausgrid network is required unless the electrical load exceeds the capacity of the dedicated customer substation.

### 4.1.3 Torrens Title

The customer must provide the following reticulation (point of connection) to each proposed allotment within the subdivision.

| **Rural Area** | | |
|---|---|---|
| Proposed allotment size | Low Voltage Mains Reticulation to service proposed allotment | High Voltage Mains Reticulation to service proposed allotment |
| When the proposed allotment or building envelop is less than or equal to 4Ha | Yes | Optional (Note 1) |
| When the proposed allotment or building envelope is greater than 4Ha and less than or equal to 40Ha | Optional (Note 1) | Yes |
| When the proposed allotment or building envelop is greater than 40Ha | Optional (Note 1) | Optional (Note 1, Note 2) |
| **Non-Rural Area** | | |
| Type of Subdivision | Low Voltage Mains Reticulation to service proposed allotment | High Voltage Mains Reticulation to service proposed allotment |
| URD | Yes | No |
| Commercial / Industrial | Yes | Yes |

**Note 1**: Whilst it is optional to supply the nominated voltage to the proposed allotment, the design may result in this voltage being made available to the allotment. The Customer can also direct the designer to provide the nominated voltage to the proposed allotment.

**Note 2**: Where access to the existing Ausgrid high voltage network is not available via dedicated public roadway to the proposed allotment, the customer is to provide Ausgrid property rights over private lands (including proposed allotments within the development) over a viable mains route to the allotment(s).

#### 4.1.3.1 Multi Staged Subdivision Master Plan

- A master plan is mandatory for multi-staged URD, rural residential, or commercial/industrial subdivisions.

The ASP/3 must prepare a master plan for the entire subdivision and submit it alongside the stage 1 design or PDS to Ausgrid for review and approval.

Ausgrid will not certify the initial stage until an approved master plan is in place.

The master plan must include a geographically based HV reticulation layout with a system diagram and be submitted electronically in PDF format. Master plans must include:

- HV cable routes and substation locations.
- Proposed subdivision and HV staging to achieve a HV loop at each stage.
- Planned connection(s) to the existing Ausgrid network at each stage.
- Associated asset relocation and temporary works.
- Estimated timeframes and lot numbers for each stage.

## 4.2 *Underground Residential Subdivision (URD) Subdivision*

### 4.2.1 General Design Criteria

- Install kiosk substation(s) within the development to meet the load requirements of the proposed subdivision allotments.
- If a kiosk substation is required only “L” types are permitted.
- Reticulate high voltage mains throughout the development to suit the new substation location(s).
- Reticulate low voltage mains throughout the development to service each allotment.
- Install street lighting throughout the subdivision development that complies with the needs of the public lighting customer.
- Install low voltage interconnection(s) from the proposed substation(s) to the existing low voltage network reticulation.
- Kiosk positioning must consider building setback and the likely future building site(s). Restrictions on the land are required to ensure a safe kiosk location is achieved.

### 4.2.2 URD Subdivision - After Diversity Maximum Demand (ADMD) Value

These values are only applicable to Underground Residential Developments (i.e. not rural, commercial or industrial subdivisions).

| Area | ADMD Value |
|---|---|
| Upper Hunter | 5.0kVA |
| Hunter | 3.5kVA |
| Central Coast | 3.5kVA |
| Sydney – North | 3.5kVA |
| Sydney - South | 3.5kVA |

## 4.3 *Rural Subdivision*

### 4.3.1 General Design Criteria

- Install substation(s) within the development to meet the load requirements of the proposed subdivision allotments.
- Reticulate high voltage throughout the development to suit the new substation location(s).
- Depending on lot size or building envelop, reticulate high voltage mains throughout the development to service applicable allotments.
- Depending on lot size or building envelop, reticulate low voltage mains throughout the development to service applicable allotments.
- Install street lighting throughout the subdivision development that complies with the needs of the public lighting customer.
- Install low voltage interconnection(s) from the proposed substation(s) to the existing low voltage network reticulation.

## 4.4 *Commercial Industrial Subdivision*

### 4.4.1 General Design Criteria

- Install kiosk substation(s) within the development to meet the load requirements of the proposed subdivision allotments.
- If a kiosk substation is required to supply multiple customers only a "L" type is permitted.
- "KK" type kiosk substation will only be permitted where it connects a dedicated single customer only.
- Reticulate high voltage underground mains throughout the development to suit the new substation location(s).
- Reticulate high voltage underground mains throughout the development to service each allotment.
- Reticulate low voltage underground mains throughout the development to service each allotment.
- Install street lighting throughout the subdivision development that complies with the needs of the public lighting customer.
- Install low voltage interconnection(s) from the proposed substation(s) to the existing low voltage network reticulation.
- For a commercial/ industrial subdivision, design must comply with NS112.

## 4.5 *Single Point of Connection*

These types of developments consist of the following.

- Multi-tenanted residential developments such as community title subdivisions, strata developments, etc.
- Non-residential individual or multiple customer connections such as workshops, warehouses, shopping centres, etc.
- Individual development property (e.g. rural or non-rural property).

### 4.5.1 General Design Criteria

The following works details potential options for the ASP/3 designer to explore when determining an extension of the network.

#### 4.5.1.1 Substation Works

- Upgrade the capacity of an existing substation, including the installation of any additional LV distributor.
- If Ausgrid's existing network is not capable of providing the necessary capacity substation(s) must be established on the development property. For rural areas only, pole mounted substations can be established either on the development property or within a dedicated public roadway.
- If the number of kiosk substations (existing or proposed) exceeds two, a chamber substation must be established. This may involve removing existing substations and transferring electrical loads to the new chamber substation(s).
- Install a HVC unit on the development property for 11kV high-voltage customers in accordance with Ausgrid Network Standard NS195.
- KK-type kiosks, single-transformer HV circuit breaker-controlled substations, and HVC substations are only allowed for single industrial or commercial customers with no other tenants. Customers should be informed of the regular supply interruptions needed for maintenance of these substations.

#### 4.5.1.2 Mains Extension Works

- Extend high-voltage mains from the proposed network connection point to the substation location(s). Kiosk and chamber substations must follow a loop-in, loop-out configuration; radial connections are prohibited unless approved by Ausgrid prior to design.
- Install a low-voltage interconnection between the proposed substation and the existing low-voltage network, with the substation LV distributor typically in a "normally open" state.
- If permitted, install a low-voltage direct distributor from an existing Ausgrid substation.
- Extend low-voltage mains from the proposed network connection point or substation to the development property.

**Note**: dedicated LV network extensions through private properties **are not allowed**.

### 4.6 *Asset Relocation Works*

Asset relocation works must comply with Ausgrid's Asset Relocation Policy.

The ASP/3 designer, in collaboration with the proponent, must secure written agreement from all affected parties, including residents with underground or overhead services impacted by the proposed design.

Evidence of these agreements must be submitted to Ausgrid as part of the design package and included in the Summary Environmental Report (SER), which is a prerequisite for certification and project commencement.

Asset relocation works not directly related to the development connection require a separate application. Major asset relocations are generally considered beyond the scope of the Design Information – General document.

### 4.7 *Apportionment of Costs*

Ausgrid Connection Policy and the Alternative Control Services Fee Schedule determine Ausgrid services and associated charges. The extent of Ausgrid-funded works is established once the ASP/3 designer submits the design for certification. Final funding details will be outlined in the Schedule to the Certified Design.

### 4.8 *Preliminary Designs*

Preliminary designs are not reviewed, approved, or commented on by Ausgrid before certification, including those attached to design scopes, environmental assessments, or earthing requests.

### 4.9 *Design Submission*

The ASP/3 designer must submit the completed design, along with all supporting documentation, via the Ausgrid CRM web portal for certification.

# 5 Appendix A - Design Information Categories

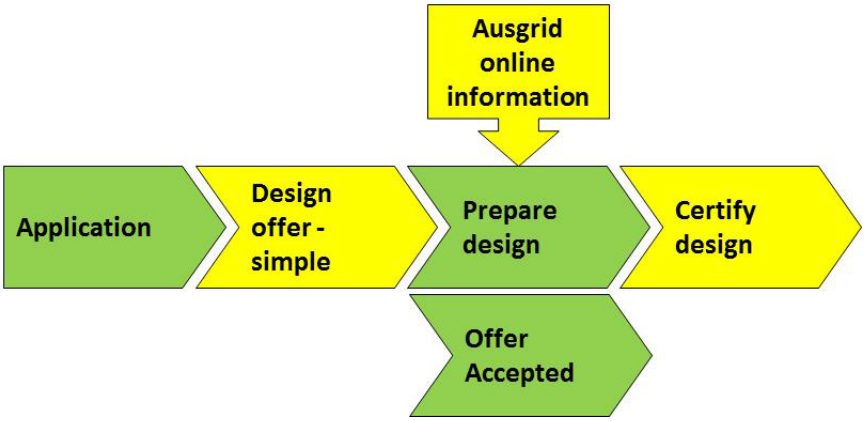
The categorisation of design information for contestable projects is detailed below*. Each project will be assessed individually by Ausgrid and categorised on a case-by-case basis. Customers and ASP/3's who categorise projects incorrectly and undertake works on this basis do so at their own risk. The submission of a Proposed Design Scope (PDS) is encouraged at submission stage for all applications to assist in classification.

## 5.1 *Simple*

Comprises only the Design Information General document, available on the website. A Design Information Site Specific document will not be provided. However, the issued "Design Related Services Offer" outlines the scope of network alterations applicable to the project.

Examples of simple design information projects (excludes Sydney CBD):

- LV extension including additional LV pillars.
- Street lighting – infill, new or upgrade.
- Subdivision stage in accordance with approved master plan.
- Asset relocations/reconductoring with no connectivity changes (includes single or multiple, suburban or rural, HV/LV/SL, reconductoring, pole, pillar, cable, streetlight and suburban undergrounding projects).
- LV Direct distributors.
- Projects that meet the self-assessed HV Connections criteria.



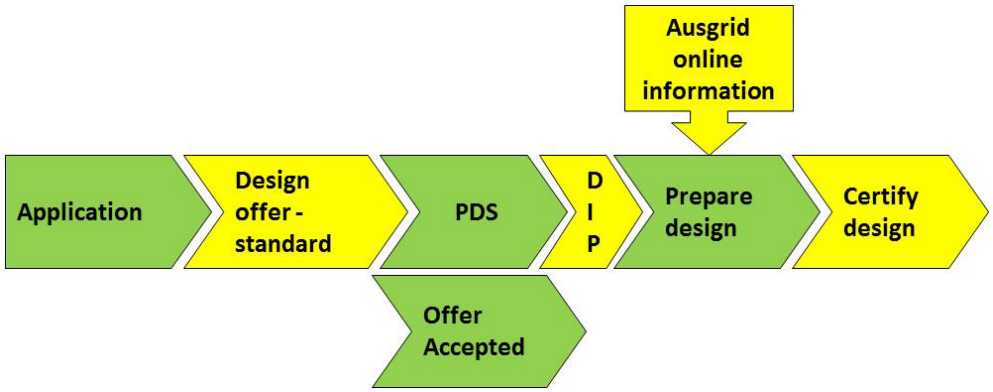

**Simple design flowchart**

## 5.2 *Standard*

Includes the Design Information General document, available on the website and a Design Information Site Specific document. Ausgrid will issue the Site-Specific document only upon submission of a Proposed Design Scope (PDS) and acceptance of a valid design contract by the ASP/3.

Examples of standard design information projects (excludes Sydney CBD):

- Multiple kiosk or pole mounted substations – new or upgraded (excluding subdivisions).
- Standard single or multi transformer chamber substation (except CBD).
- High voltage customer substations (kiosks and chambers).
- Subdivision initial stage or subdivision without master plan.
- Decommissioning/relocation of PTs, Kiosk, chambers substations (except CBD).




**Standard design flowchart**

### 5.3 *Complex*

Includes the Design Information General document, available on the website and the Design Information Site Specific document. Ausgrid will issue the Site-Specific document upon acceptance of a valid design contract by the ASP/3.

Examples of complex design information projects:

- Sydney CBD chamber substation or CBD underground works.
- Major relocation works and relocations with connectivity changes (associated with major infrastructure projects or undergrounding of commercial districts).


**Complex design flowchart**

***** *Ausgrid Major Connections Projects (typically sub-transmission) fall outside the scope of this document and the design information categories outlined above. These projects must comply with Ausgrid's Major Connections process requirements.*